

# Software Engineering Fundamentals

## Lecture 4 : Worked example

### Hospitals & Patients

- A hospital looks after patients and keeps track of
  - For patients
    - Personal details
    - Status
    - Treatment history (including who treated them)
    - Planned treatments
    - Current medication
    - Location
    - Dietary requirements
  - For staff
    - Staff work history (which wards they are allocated to)
- What other behavioural requirements would there be?

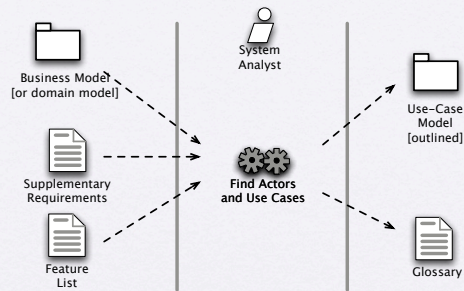
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### Notes

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# Rational Unified Process workflows

- The RUP specifies a number of workflows that show how creates/transforms data
- This is the "Find Actors and Use Cases" workflows



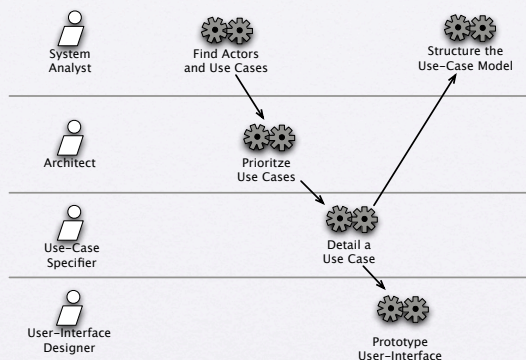
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## RUP Requirements gathering

- RUP specifies the following workflows for capturing requirements...
  - Find Actors and Use Cases
  - Prioritise Use Cases
  - Detail a Use Case
    - Create a textual format including normal scenarios, alternatives etc.
  - Prototype User Interfaces
    - Explore how users may interact with the system
  - Structure the Use Case Model
    - Find common use cases and extract them for "includes"
    - Find use cases that are extensions of other use cases

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## RUP Requirements gathering



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# RUP Analysis

- RUP specifies analysis using concepts we haven't yet covered (e.g. communication diagrams)
- We'll also look at ways of identifying some simple candidate classes
- We'll informally look at creating these interaction diagrams as a link between use cases and classes diagrams

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## Identifying possible classes

- From the use cases/requirements find potential classes by listing the names of objects
- Identify possible attributes of each class
- Identify attributes which are actually references to other classes
  - Those references become associations between the classes
  - Remove the attributes that have been promoted to associations
  - Establish multiplicity

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## Identify class interaction

- You now identify how classes could possibly interact to fulfil the use cases
- These become communication diagrams
- There could be a communication diagram for every possible use case scenario, but we generally restrict ourselves to the "happy day scenario" and the main alternatives